

REMARKS

Applicants appreciate the helpful guidance provided by the Examiner in the October 30, 2007 telephonic interview.

The October 30, 2007 Telephonic Interview

In accordance with MPEP § 713.04, Applicants provide a statement of the substance of the interview held by the Examiner and Applicants' representative.

The Examiner and the Applicants' representative discussed the rejection of claim 1 as unpatentable over U.S. Patent No. 5,302,471 (Ito et al.) in view of U.S. Patent Application Publication No. 2002/0146610 (Hayashi et al.). The Applicants' representative pointed out that, contrary to the arguments of the August 23, 2007 final Office action, the "stop sequence mode" of the Hayashi et al. reference does not disclose a "control unit [that] is adapted to operate the electrical heaters and the water purging device when a power generation stop command for stopping the power generation operation in the fuel cell stack is output."

The Examiner indicated that she was inclined to agree that the Hayashi et al. reference does not disclose operating the heaters during the "stop sequence mode," but would like to study the reference in more detail. In that regard, the Examiner requested that the response include citations to relevant passages in the Hayashi et al. reference. The Examiner also requested citations to law that support treating the "adapted to" language as actually limiting the scope of the claims.

Claim Rejections

The Office action rejected claims 1-13 and 16 under 35 U.S.C. § 103 as unpatentable over the Ito et al. patent in view of the Hayashi et al. reference. The Office action argued that the "stop sequence mode" of the Hayashi et al. reference discloses the claimed "control unit." (Office action at pp. 4-5) As the Applicants' representative pointed out during the October 30, 2007 interview, the Hayashi et al. reference does not disclose a "control unit [that] is adapted to

operate the electrical heaters and the water purging device when a power generation stop command for stopping the power generation operation in the fuel cell stack is output.”

The “stop sequence mode” of the Hayashi et al. reference does not include any heating step. Instead, it is directed to improving the draining efficiency of generated water by increasing the gas flow velocity.

The Hayashi et al. reference discloses operating the heaters during start-up (*not* when “a power generation stop command for stopping the power generation operation in the fuel cell stack is output”), and shuts them once a predetermined temperature is reached:

[0132] When the operation of the fuel cell 1 is started, if it is detected that the temperature of the fuel cell 1 is equal to or below a predetermined temperature (e.g., 0° C.) base on the detected result of the temperature sensor T, the ECU 50 switches the electric heater on, so that the upper half of the fuel cell 1 is heated. Under these conditions, the auxiliary machines are activated using a battery for these machines, and air is supplied from the supercharger S/C via the supply passage 13 to the reaction gas passages C1 and C2, while hydrogen is supplied from the hydrogen tank H2 via the supply passage 23 to the reaction gas passages A1 and A2.

[0135] When the temperature detected by the temperature sensor T reaches a predetermined temperature (e.g., 5° C.), the ECU 50 determines that the local generation should be terminated and stops the electric heater, so that the local plane generation is switched to the entire plane generation. Accordingly, the entire plane power generation without using the electric heater is performed, and rated power can be output from the fuel cell 1.

In the stop sequence mode in the Hayashi et al. reference, the generated water is drained from the fuel cell by opening a valve; however, a heating operation using a heater is not carried out:

[0197] In the stop sequence mode in step S07, in order to improve the restarting performance of the (stopped) fuel cell 1, the generated water remains in the reaction gas passage C is drained before stopping the fuel cell 1. In this mode, the valve VA is opened, the valve VB is closed or slightly opened, and the valve VC is closed. Accordingly, the flow velocity in the local

generation reaction gas passage C3 is increased, so that the draining efficiency of the generated water is improved. Therefore, it is possible to reliably prevent the generated water in the reaction gas passage C3 from freezing. In addition, the flow velocity of the reaction gas in the reaction gas passage C3 can be controlled by controlling the degree of opening of the valve VB. Furthermore, the generated water generated at the lower side of the power generation plane of the membrane electrode assembly 5 can be drained by slightly opening the valve VB.

[0214] In the stop sequence mode of the present embodiment, the valve VA is opened, the valve VB is closed or slightly opened, and the valve VC is closed. Accordingly, the flow velocity in the local generation reaction gas passage CC1 increases, so that the draining efficiency of the generated water is improved. Therefore, it is possible to reliably prevent the generated water in the reaction gas passage CC1 from freezing. In addition, the flow velocity of the reaction gas in the reaction gas passage CC1 can be controlled by controlling the degree of opening of the valve VB. Furthermore, the generated water generated at the lower side of the power generation plane of the membrane electrode assembly 5 can be drained by slightly opening the valve VB.

Accordingly, there is no disclosure in the Hayashi et al. reference of a “control unit [that] is adapted to operate the electrical heaters and the water purging device when a power generation stop command for stopping the power generation operation in the fuel cell stack is output.” Applicants respectfully submit that the subject matter of claim 1 is not disclosed or rendered obvious by the cited art. Claims 2-13 and 16 recite additional features and are independently patentable.

“Adapted to”

During the October 30, 2007 telephonic interview, the Examiner requested citations to law that support treating the “adapted to” language in claim 1 as a “positive limitation.” As an initial matter, Applicants’ point out that the claims 1-13 were objected to in the September 22, 2006 Office action for their use of the language “adapted to.” Applicants overcame that objection by argument.

Nonetheless, Applicants direct the Examiner to the following authorities that support treating the functional language following the phrase “adapted to” in claim 1 as a “positive limitation.”

Applicants are given discretion to choose the manner in which to claim their inventions. As the MPEP states, “Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought.” MPEP § 2173.01. The MPEP goes on to reiterate that “[t]here is nothing inherently wrong with defining some part of an invention in functional terms” and a “functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.” MPEP § 2173.05(g).

Accordingly, it is routine for courts, when construing claim scope, to interpret a functional limitation as a “positive limitation.” Applicants direct the Examiner to the following decisions¹ in which functional language was construed as a “positive limitation”:

- In the context of evaluating the validity of a claim in *Haberman v. Gerber Prods. Co.*, 2007 WL 1577970, *1-*4 (Fed. Cir. May 29, 2007), the Federal Circuit construed an apparatus claim having the limitation “a membrane . . . adapted such that the liquid may be drawn from or through said article by the sole application of a predetermined level of suction.” The cited art did not expressly disclose that the apparatus was “adapted” as described in the claim. The Federal Circuit noted that, for a finding of anticipation to stand, the claimed functionality must be found to be inherent in the cited art. *Id.* at *4. In other words, although the limitation was written in “functional” language, the Federal Circuit held that anticipation requires that it nonetheless be found in the prior art.
- In reviewing the district court’s claim construction in *ACCO Brands, Inc. v. Micro Security Devices, Inc.*, 346 F.3d 1075, 1077-78 (Fed. Cir. 2003), the Federal Circuit construed an apparatus claim having the limitation “a pin . . . for extending into said security slot . . . when said slot engagement member is in said locked position to thereby inhibit rotation of said slot engagement member.” The Federal Circuit construed the “for extending...” phrase to be a “functional restriction on the pin,” noting that the “functional language is, of course, an additional limitation in the claim.” *Id.* at 1078.

¹ The Examiner is invited to contact the undersigned should she desire copies of any of the authorities cited herein.

- In reversing the final rejection of apparatus claims in *Ex parte Yi-Shung Chuag*, Appeal No. 2002-1397, Application No. 09/310,800, the Board of Patent Appeals and Interferences construed the limitation “a plurality of recording elements operable for at least one of reading from and writing to the multi-track medium.” The Applicant argued that the cited art did not teach a multi-recording element head assembly that is operable for either reading or writing to a medium, as claimed. *Id.* at 3. The Examiner argued that the independent claims use the term “operable” as a statement of intended use. *Id.* The Board disagreed, and reversed the Examiner’s rejection for its failure to point to the disclosure of claimed feature in the cited art. *Id.* at 5.
- In reversing the final rejection of apparatus claims in *Ex parte Joonyoul Maeng and Errol R. Williams*, Appeal No. 2000-0546, Application No. 08/509,228, the Board construed a limitation in claim 12: “a camera controller operable: to receive speaker position data representing the position of the speaker as coordinates for a point in space.” The Board held that this language “reasonably allows for the reading of claim 12 to require a camera controller to receive data that represents the position of the speaker as coordinates for a point in space and to automatically track the position of the speaker based upon the data received.” *Id.* at 7. The Board, in reversing the rejection, relied on this limitation to distinguish the cited art. *Id.* at 9.
- In reversing the final rejection of apparatus claims in *Ex parte Per Lange et al.*, Appeal No. 97-0963, Application No. 08/439,515, the Board construed a limitation in claim 6, namely, an exhaust gas brake “structured and arranged to selectively throttle the exhaust gases to brake the engine.” The Examiner argued that the cited art “structurally anticipated the appealed claims” and that the “engine braking set forth in the claims is a functional and not a structural differentiation.” *Id.* at 6. The Board disagreed. The Board held that the cited art does not anticipate the claims because the allegedly corresponding structure “is not an exhaust gas brake throttle since that structure does not permit exhaust braking of the engine as set forth by the appellants.” *Id.* at 6-7.
- In construing a claim that was directed to a kit of component parts capable of being assembled, the Court in *In re Venezia*, 530 F.2d 956 (C.C.P.A. 1976) held that limitations such as “members adapted to be positioned” and “portions . . . being resiliently dilatable whereby said housing may be slidably positioned” serve to precisely define present structural attributes of interrelated component parts of the claimed assembly.
- In *In re Application of Echerd*, 471 F.2d 632 (C.C.P.A. 1973), the Court construed a claim directed to a “flame-resistant, drapable, pipe lagging material.” In that case, the Court noted that the “fundamental question is whether appellants’ functional language places additional limitations on the claimed

product.” *Id.* at 634. In particular, the Court questioned whether “the properties of ‘sufficient flexibility and wet strength to permit the same to be wrapped when wet around insulated pipe surfaces and the like’ and ‘sufficient adhesive characteristics to firmly bond itself to such surfaces upon subsequent drying’ [should] be given weight in considering the invention as a whole?” *Id.* The Court held that they must. “There is nothing intrinsically wrong in defining something by what it does rather than by what it is. . . . While the Patent Office may properly require proof that the functional limitations being relied upon are not inherent characteristics of the prior art . . . these distinguishing features cannot simply be ignored.” *Id.* at 635.

In light of the above, Applicants respectfully submit that it is legally improper to ignore the claimed features, even if they are written in “functional” language. Moreover, Applicants submit that the Office action points to no evidence that the claimed features are inherent in the Hayashi et al. reference. To the contrary, the Hayashi et al. reference discloses the opposite of what is claimed, *i.e.*, operating the heaters during only start-up of the fuel cell (*e.g.*, as discussed above). Applicants submit that no inherent disclosure exists.

Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.

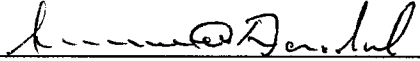
Please apply any other charges or credits to deposit account 06-1050.

Applicant : Hideo Kato et al.
Serial No. : 10/658,148
Filed : September 9, 2003
Page : 12 of 12

Attorney's Docket No.: 15682-003001 / OSP-14643

Respectfully submitted,

Date: 11/15/07



Samuel Borodach
Reg. No. 38,388

Fish & Richardson P.C.
Citigroup Center
52nd Floor
153 East 53rd Street
New York, New York 10022-4611
Telephone: (212) 765-5070
Facsimile: (212) 258-2291

30377781.doc